

## *Appendix*



# Technical Notes

We recommend that the following be kept in mind when examining the data:

- Limitations of small numbers: In cases where there are small numbers of teen births, especially at the city/town level and by race/ethnicity or age, small changes in the numbers from year to year will produce large changes in percentages, making the differences appear more important than they are in reality.
- Missing data: Unless otherwise stated, percentages are based on the number of births or mothers that have *known* information regarding a demographic or birth characteristic.
- Self-reported data: Many items used in this publication, such as number of prenatal care visits, maternal smoking, and type of health insurance coverage, are self-reported and thus subject to the usual limitations of this type of information.
- Calculation of birth rates: Birth rates (number of births per 1,000 women) are calculated using Census counts of the resident population of Massachusetts. Because the Census is taken only once every ten years, the annual number of residents in each city/town and in the state for non-Census years are projected estimates, not actual counts. Therefore, the numbers of resident women may be underestimated (resulting in inflated birth rates), or overestimated (resulting in lower birth rates). The population estimates for 1991-1996 were revised in June 1997. As a result, the birth rates for these years were recalculated. Reporting of the revised birth rates began in last year's publication (*Adolescent Births: Statistical Profile, Massachusetts 1996*).
- Calculation of infant mortality rates (IMR) for teenage mothers: Death certificates record only the age of the decedent, not that of the mother. To know which infants who died before their first birthday had a teenage mother, it is necessary to link the infant death certificates to their birth certificates. Each year, the Registry of Vital Statistics creates such a file, called the Linked Birth/Infant Death file. All births in a calendar year are linked to all infant deaths occurring within one year of the date of birth, which may be in the same calendar year as the year of birth or in the following year. For example, if an infant is born on June 30, 1997 and dies on March 1, 1998, that infant would be included in the 1997 linked file because he/she was born in 1997 and died before reaching one year of age. The 1997 infant mortality rate for women under the age of 20 will not be available until the 1997 linked birth/infant death file is complete. Therefore, the 1996 maternal age-specific infant mortality rate is the most recent available and is included in this report.

Since infant mortality rates in this report are calculated using data from the linked birth/infant death file, they are not comparable to the rates published in *Advance Data: Births*, which uses the standard method to calculate IMRs (number of infant deaths in a year per 1,000 live births delivered in the same year).

- Change in the calculation of expected educational attainment: Data in this report should not be compared with previous reports. Prior to 1997, expected level of educational attainment (see *Glossary* for further explanation) was calculated differently for US-born and foreign-born teenage mothers. Beginning with this report, the same age-for-grade cutoffs were used regardless of maternal place of birth.
- Change in gestational age categories: Beginning with this report, full-term infants are defined as having been born between 37 and 42 completed weeks of gestation. Prior to 1997, full-term infants were defined as having gestational ages between 37 and 41 completed weeks gestation. Therefore, caution should be used in comparing 1997 data with prior years' data.
- Change in categorization of prenatal care source of payment: Beginning with this report, free care is included in public source of payment for prenatal care. Prior to 1997, free care was included in other sources of payment. There was no change in the definition of private sources of payment; therefore, the data for private pay mothers are comparable with prior reports.
- Community Health Network Areas (CHNAs): The data published in this report reflect the new definitions of CHNAs instituted in January 1997. See *Glossary* for further definition.

# Glossary

**Adequacy of Prenatal Care:** Adequacy of prenatal care is calculated from information reported by the birth hospital on the birth certificate. The index of Adequacy of Prenatal Care (based on the Kessner Index) used in this report has three categories (adequate, intermediate, inadequate/none). These categories are based on the trimester in which prenatal care began and the number of prenatal visits. The general classification scheme for full-term infants is as follows:

<u>Category</u>	<u>Trimester Care Began</u>	<u>Number of Visits</u>
Adequate	1	9 or more
Intermediate	1	5-8
	2	5 or more
Inadequate/None	1	1-4
	2	1-4
	3	1 or more
	--	0

The classification is adjusted for gestational age to allow for proper classification of premature infants. *See Foreword.*

**Birth Rate:** see Teen Birth Rate.

**Birthweight Categories:** The weight of an infant recorded at the time of delivery.

**Normal Birthweight (NBW):** An infant's weight of 2,500 grams (5.5 pounds) or more

**Low Birthweight (LBW):** An infant's weight of less than 2,500 grams (5.5 pounds)

**Very Low Birthweight (VLBW):** An infant's weight of less than 1,500 grams (3.3 pounds)

**Community Health Network Area (CHNA):** The Department of Public Health, in collaboration with health service providers, coalition members, and interested citizens, has designated 27 areas for community health planning. Coalitions in each CHNA address the health needs of the community through development of strategies, monitoring of outcomes and the progress of the strategies and responses to those health needs. A CHNA is defined as an aggregation of cities and towns (the City of Boston constitutes its own CHNA). The table at the end of the Appendix provides a list of the 351 cities and towns with the corresponding CHNA number.

**Education:** Education is self-reported on the birth certificate by the mother and indicates the highest grade or total number of years of schooling she has completed.

**Ethnicity:** Mother's ethnicity is self-reported on the birth certificate.

**Expected Educational Attainment:** The maximum expected age of a student in a particular school grade. Teen mothers were classified as being at least one grade behind if they were two or more years older than the maximum expected age for the reported grade level. For example, if a teen is 16 years old and reports she has completed eighth grade, then she is at least one year behind the expected age for that grade. The following age-for-grade cutoffs were used:

<u>Grade</u>	<u>Maximum Expected Age</u>
6th	12
7th	13
8th	14
9th	15
10th	16
11th	17
12th	18

**Gestational Age:** The duration of pregnancy measured by number of completed weeks gestation. In this publication, the clinical estimate of gestational age has been used for analysis. Clinical gestational age is determined by the attendant at birth or a physician providing postnatal care to the newborn and is reported on the birth certificate. A normal gestational age is defined as delivery between the completion of the 37th and the 42nd week of pregnancy.

**Healthy Start:** Healthy Start is a Massachusetts-funded program providing services and financing for prenatal care to low-income (up to 200% of the poverty level in 1997) pregnant women who lack health insurance but do not qualify for Mass Health (Medicaid).

**Infant Mortality:** See Mortality Categories.

**Infant Mortality Rate (IMR):** See Mortality Rate Categories

**Live Birth:** A live birth is defined as any infant who breathes or shows any other evidence of life after delivery (such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles), regardless of duration of gestation or birthweight. All figures and tables in this report, showing Massachusetts data, are based on live births to Massachusetts residents (see Resident Birth).

**Low Birthweight (LBW):** see Birthweight Categories.

**Mortality Categories:**

**Infant Mortality:** The death of a child under 1 year of age ( $\leq 364$  days old).

**Neonatal Mortality:** The death of an infant less than 28 days old.

**Post Neonatal Mortality:** The death of an infant between 28 and 364 days after birth.

## **Mortality Rate Categories:**

**Infant Mortality Rate (IMR):** The death rate among infants less than one year old per 1,000 live births.

**Neonatal Mortality Rate (NMR):** The death rate among newborns less than 28 days old per 1,000 live births.

**Post Neonatal Mortality Rate (PNMR):** The death rate among infants 28-364 days old per 1,000 live births.

**Mother's Age:** Mother's age is computed from her date of birth and the date of delivery.

**Multiparous:** A multiparous mother is one who has had at least one prior live birth.

**Neonatal Mortality:** see Mortality Categories.

**Neonatal Mortality Rate (NMR):** See Mortality Rate Categories.

**Normal Birthweight (NBW):** see Birthweight Categories.

**Parity:** The number of live infants ever born to the mother. Parity includes all previous live births as well as the infant named on the birth certificate.

**Paternity Acknowledgement:** The process by which the paternity of an infant is legally established when the parents are unmarried. As part of the birth registration process, unmarried parents sign an acknowledgement form and their signatures are notarized. The father's information is then added to the child's birth certificate. Paternity can also be acknowledged at a town clerk's office after the mother and child have been discharged from the hospital. Paternity may be established through legal action or through voluntary acknowledgement in the case of unmarried couples; when a couple is married, the husband is legally considered the infant's father. *Paternity acknowledgement data in this report reflect acknowledgments made in hospitals at the time of birth only.*

**Postneonatal Mortality:** see Mortality Categories.

**Post Neonatal Mortality Rate (PNMR):** See Mortality Rate Categories.

**Prenatal Care Payment Source:** Prenatal care payment source is self-reported by the mother. Two groupings are used in this report:

Private:	Blue Cross/Blue Shield, commercial insurance, and health maintenance organizations (HMOs). The HMO category may include Mass Health (Medicaid) recipients in managed care programs.
Public:	Mass Health (Medicaid), Healthy Start, Medicare, free care, and other government sources.

**Race/Hispanic Ethnicity:** Mother's race and Hispanic ethnicity are self-reported.

**Resident Birth:** The birth of an infant whose mother reports her usual place of residence as Massachusetts. In Massachusetts, a resident is a person with a permanent address in one of the 351 cities or towns. Massachusetts resident births include all births that occur among residents of the Commonwealth whether they occur in Massachusetts or elsewhere.

**Teen Birth Rate:** The number of children born among females ages 15 to 19 divided by the population of females in that age group, multiplied by 1,000.

**Very Low Birthweight (VLBW):** see Birthweight Categories.



**1997 Population Estimates of Females Ages 15 to 19 Years Living in  
the 25 Massachusetts Communities\* with the Highest Number of  
Teen Births in 1997**

<b><u>Community</u></b>	<b><u>Estimated Number of Females, Ages 15-19 years</u></b>
<i>Massachusetts</i>	<i>171,809</i>
Barnstable	958
Boston	17,419
Brockton	2,733
Cambridge	3,068
Chelsea	979
Chicopee	1,684
Fall River	2,637
Fitchburg	1,596
Framingham	1,624
Haverhill	1,424
Holyoke	1,896
Lawrence	3,414
Leominster	1,041
Lowell	3,621
Lynn	2,467
Methuen	754
New Bedford	3,328
Pittsfield	853
Plymouth	1,453
Quincy	1,314
Revere	494
Somerville	1,754
Southbridge	523
Springfield	5,784
Taunton	1,372
Westfield	1,483
Worcester	5,975

Source: 1997 estimates extrapolated from MISER estimates. See Foreword for further information.

\* 27 communities are listed because of ties in the numbers of teen births.

Massachusetts Cities, Towns, Counties, and Community Health Network Areas (CHNAs)

City/Town	County	CHNA	City/Town	County	CHNA
Abington	Plymouth	22	Dartmouth	Bristol	26
Acton	Middlesex	15	Dedham	Norfolk	18
Acushnet	Bristol	26	Deerfield	Franklin	2
Adams	Berkshire	1	Dennis	Barnstable	27
Agawam	Hampden	4	Dighton	Bristol	24
Alford	Berkshire	1	Douglas	Worcester	6
Amesbury	Essex	12	Dover	Norfolk	18
Amherst	Hampshire	3	Dracut	Middlesex	10
Andover	Essex	11	Dudley	Worcester	5
Arlington	Middlesex	17	Dunstable	Middlesex	10
Ashburnham	Worcester	9	Duxbury	Plymouth	23
Ashby	Middlesex	9	East Bridgewater	Plymouth	22
Ashfield	Franklin	2	East Brookfield	Worcester	5
Ashland	Middlesex	7	East Longmeadow	Hampden	4
Athol	Worcester	2	Eastham	Barnstable	27
Attleboro	Bristol	24	Easthampton	Hampshire	3
Auburn	Worcester	8	Easton	Bristol	22
Avon	Norfolk	22	Edgartown	Dukes	27
Ayer	Middlesex	9	Egremont	Berkshire	1
Barnstable	Barnstable	27	Erving	Franklin	2
Barre	Worcester	9	Essex	Essex	13
Becket	Berkshire	1	Everett	Middlesex	16
Bedford	Middlesex	15	Fairhaven	Bristol	26
Belchertown	Hampshire	3	Fall River	Bristol	25
Bellingham	Norfolk	6	Falmouth	Barnstable	27
Belmont	Middlesex	17	Fitchburg	Worcester	9
Berkley	Bristol	24	Florida	Berkshire	1
Berlin	Worcester	9	Foxborough	Norfolk	7
Bernardston	Franklin	2	Framingham	Middlesex	7
Beverly	Essex	13	Franklin	Norfolk	6
Billerica	Middlesex	10	Freetown	Bristol	26
Blackstone	Worcester	6	Gardner	Worcester	9
Blandford	Hampden	4	Gay Head	Dukes	27
Bolton	Worcester	9	Georgetown	Essex	12
Boston	Suffolk	19	Gill	Franklin	2
Bourne	Barnstable	27	Gloucester	Essex	13
Boxborough	Middlesex	15	Goshen	Hampshire	3
Boxford	Essex	12	Gosnold	Dukes	27
Boylston	Worcester	8	Grafton	Worcester	8
Braintree	Norfolk	20	Granby	Hampshire	3
Brewster	Barnstable	27	Granville	Hampden	4
Bridgewater	Plymouth	22	Great Barrington	Berkshire	1
Brimfield	Hampden	5	Greenfield	Franklin	2
Brockton	Plymouth	22	Groton	Middlesex	9
Brookfield	Worcester	5	Groveland	Essex	12
Brookline	Norfolk	19	Hadley	Hampshire	3
Buckland	Franklin	2	Halifax	Plymouth	23
Burlington	Middlesex	15	Hamilton	Essex	13
Cambridge	Middlesex	17	Hampden	Hampden	4
Canton	Norfolk	20	Hancock	Berkshire	1
Carlisle	Middlesex	15	Hanover	Plymouth	23
Carver	Plymouth	23	Hanson	Plymouth	23
Charlemont	Franklin	2	Hardwick	Worcester	9
Charlton	Worcester	5	Harvard	Worcester	9
Chatham	Barnstable	27	Harwich	Barnstable	27
Chelmsford	Middlesex	10	Hatfield	Hampshire	3
Chelsea	Suffolk	19	Haverhill	Essex	12
Cheshire	Berkshire	1	Hawley	Franklin	2
Chester	Hampden	3.1	Heath	Franklin	2
Chesterfield	Hampshire	3	Hingham	Plymouth	20
Chicopee	Hampden	3.1	Hinsdale	Berkshire	1
Chilmark	Dukes	27	Holbrook	Norfolk	22
Clarksburg	Berkshire	1	Holden	Worcester	8
Clinton	Worcester	9	Holland	Hampden	5
Cohasset	Norfolk	20	Holliston	Middlesex	7
Colrain	Franklin	2	Holyoke	Hampden	3.1
Concord	Middlesex	15	Hopedale	Worcester	6
Conway	Franklin	2	Hopkinton	Middlesex	7
Cummington	Hampshire	3	Hubbardston	Worcester	9
Dalton	Berkshire	1	Hudson	Middlesex	7
Danvers	Essex	14	Hull	Plymouth	20

City/Town	County	CHNA	City/Town	County	CHNA
Huntington	Hampshire	3.1	Northampton	Hampshire	3
Ipswich	Essex	13	Northborough	Worcester	7
Kingston	Plymouth	23	Northbridge	Worcester	6
Lakeville	Plymouth	24	Northfield	Franklin	2
Lancaster	Worcester	9	Norton	Bristol	24
Lanesborough	Berkshire	1	Norwell	Plymouth	20
Lawrence	Essex	11	Norwood	Norfolk	20
Lee	Berkshire	1	Oak Bluffs	Dukes	27
Leicester	Worcester	8	Oakham	Worcester	9
Lenox	Berkshire	1	Orange	Franklin	2
Leominster	Worcester	9	Orleans	Barnstable	27
Leverett	Franklin	2	Otis	Berkshire	1
Lexington	Middlesex	15	Oxford	Worcester	5
Leyden	Franklin	2	Palmer	Hampden	4
Lincoln	Middlesex	15	Paxton	Worcester	8
Littleton	Middlesex	15	Peabody	Essex	14
Longmeadow	Hampden	4	Pelham	Hampshire	3
Lowell	Middlesex	10	Pembroke	Plymouth	23
Ludlow	Hampden	3.1	Pepperell	Middlesex	9
Lunenburg	Worcester	9	Peru	Berkshire	1
Lynn	Essex	14	Petersham	Worcester	2
Lynnfield	Essex	14	Phillipston	Worcester	2
Malden	Middlesex	16	Pittsfield	Berkshire	1
Manchester	Essex	13	Plainfield	Hampshire	3
Mansfield	Bristol	24	Plainville	Norfolk	7
Marblehead	Essex	14	Plymouth	Plymouth	23
Marion	Plymouth	26	Plympton	Plymouth	23
Marlborough	Middlesex	7	Princeton	Worcester	9
Marshfield	Plymouth	23	Provincetown	Barnstable	27
Mashpee	Barnstable	27	Quincy	Norfolk	20
Mattapoisett	Plymouth	26	Randolph	Norfolk	20
Maynard	Middlesex	7	Raynham	Bristol	24
Medfield	Norfolk	7	Reading	Middlesex	14
Medford	Middlesex	16	Rehoboth	Bristol	24
Medway	Norfolk	6	Revere	Suffolk	19
Melrose	Middlesex	14	Richmond	Berkshire	1
Mendon	Worcester	6	Rochester	Plymouth	26
Merrimac	Essex	12	Rockland	Plymouth	23
Methuen	Essex	11	Rockport	Essex	13
Middleborough	Plymouth	24	Rowe	Franklin	2
Middlefield	Hampshire	3	Rowley	Essex	12
Middleton	Essex	11	Royalston	Worcester	2
Milford	Worcester	6	Russell	Hampden	4
Millbury	Worcester	8	Rutland	Worcester	9
Millis	Norfolk	7	Salem	Essex	14
Millville	Worcester	6	Salisbury	Essex	12
Milton	Norfolk	20	Sandisfield	Berkshire	1
Monroe	Franklin	2	Sandwich	Barnstable	27
Monson	Hampden	4	Saugus	Essex	14
Montague	Franklin	2	Savoy	Berkshire	1
Monterey	Berkshire	1	Scituate	Plymouth	20
Montgomery	Hampden	4	Seekonk	Bristol	24
Mt. Washington	Berkshire	1	Sharon	Norfolk	20
Nahant	Essex	14	Sheffield	Berkshire	1
Nantucket	Nantucket	27	Shelburne	Franklin	2
Natick	Middlesex	7	Sherborn	Middlesex	7
Needham	Norfolk	18	Shirley	Middlesex	9
New Ashford	Berkshire	1	Shrewsbury	Worcester	8
New Bedford	Bristol	26	Shutesbury	Franklin	2
New Braintree	Worcester	9	Somerset	Bristol	25
New Marlborough	Berkshire	1	Somerville	Middlesex	17
New Salem	Franklin	2	South Hadley	Hampshire	3
Newbury	Essex	12	Southampton	Hampshire	3
Newburyport	Essex	12	Southborough	Worcester	7
Newton	Middlesex	18	Southbridge	Worcester	5
Norfolk	Norfolk	7	Southwick	Hampden	4
North Adams	Berkshire	1	Spencer	Worcester	5
North Andover	Essex	11	Springfield	Hampden	4
N. Attleborough	Bristol	24	Sterling	Worcester	9
North Brookfield	Worcester	5	Stockbridge	Berkshire	1
North Reading	Middlesex	14	Stoneham	Middlesex	14

City/Town	County	CHNA	
Stoughton	Norfolk	22	
Stow	Middlesex	7	
Sturbridge	Worcester	5	
Sudbury	Middlesex	7	
Sunderland	Franklin	2	
Sutton	Worcester	6	
Swampscott	Essex	14	
Swansea	Bristol	25	
Taunton	Bristol	24	Community Health Network Areas
Templeton	Worcester	9	
Tewksbury	Middlesex	10	1. Community Health Network of Berkshire
Tisbury	Dukes	27	2. Upper Valley health Web (Franklin County)
Tolland	Hampden	4	3. Partnership for Health in Hampshire County
Topsfield	Essex	13	(Greater Northampton Area)
Townsend	Middlesex	9	3.1 Four (For) Communities (Greater Holyoke)
Truro	Barnstable	27	4. The Community Health Connection (Greater Springfield)
Tyngsborough	Middlesex	10	5. Greater Southbridge Community Health Network
Tyringham	Berkshire	1	6. Community Partners for Health (Greater Milford Area)
Upton	Worcester	6	7. CHN of Greater Metro West (Greater Framingham Area)
Uxbridge	Worcester	6	8. Community Wellness Coalition (Greater Worcester)
Wakefield	Middlesex	14	9. Fitchburg/Gardner Community Health Network
Wales	Hampden	5	10. Greater Lowell Community Health Network
Walpole	Norfolk	7	11. Greater Lawrence Community Health Network
Waltham	Middlesex	18	12. Greater Haverhill Community Health Network
Ware	Hampshire	3	13. Greater Beverly/Gloucester CHN
Wareham	Plymouth	26	14. North Shore Community Health Network
Warren	Worcester	5	15. Greater Woburn/Concord/Littleton CHN
Warwick	Franklin	2	16. North Suburban Health Alliance
Washington	Berkshire	1	(Malden/Medford/Melrose Area)
Watertown	Middlesex	17	17. Greater Cambridge/Somerville CHN
Wayland	Middlesex	7	18. West Suburban Health Network (Newton/Waltham)
Webster	Worcester	5	19. Alliance for Community Health
Wellesley	Norfolk	18	(City of Boston/Chelsea/Revere/Winthrop Area)
Wellfleet	Barnstable	27	20. Blue Hills Community Health Alliance
Wendell	Franklin	2	(Greater Quincy Area)
Wenham	Essex	13	22. Greater Brockton Community Health Network
West Boylston	Worcester	8	23. South Shore Community Partners in Prevention
West Bridgewater	Plymouth	22	(Greater Plymouth Area)
West Brookfield	Worcester	5	24. Health & Education Response
West Newbury	Essex	12	(Greater Attleboro/Taunton Area)
West Springfield	Hampden	4	25. Partners for a Healthier Community (Greater Fall River)
West Stockbridge	Berkshire	1	26. Greater New Bedford Community Health Network
West Tisbury	Dukes	27	27. Cape and Islands Community Health Network
Westborough	Worcester	7	
Westfield	Hampden	3.1	
Westford	Middlesex	10	
Westhampton	Hampshire	3	
Westminster	Worcester	9	
Weston	Middlesex	18	
Westport	Bristol	25	
Westwood	Norfolk	18	
Weymouth	Norfolk	20	
Whately	Franklin	2	
Whitman	Plymouth	22	
Wilbraham	Hampden	4	
Williamsburg	Hampshire	3	
Williamstown	Berkshire	1	
Wilmington	Middlesex	15	
Winchendon	Worcester	9	
Winchester	Middlesex	15	
Windsor	Berkshire	1	
Winthrop	Suffolk	19	
Woburn	Middlesex	15	
Worcester	Worcester	8	
Worthington	Hampshire	3	
Wrentham	Norfolk	7	
Yarmouth	Barnstable	27	